U.S. EPA Meeting with Sprinturf (phone conference call)

May 2, 2016; 2:00 PM - 3:00 PM
One Potomac Yard
2777 Crystal Drive / Arlington, VA 22202
Room S-6100

Attendees: Chris Carusiello (**CC**), Ksenija Janjic (**KJ**), Nicole Villamizar (**NV**), Jacqueline McQueen (**JM**), Charlotte Mooney (**CM**) from US-EPA; Rom Reddy (**RR**), Bruce Cheskin (**BC**) from Sprinturf; Nancy Nord (**NN**) and Elliot Belilos (**EB**) from OSW-Law

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KJ: We were wondering who the largest synthetic turf field installers across the U.S. are. Whatever you tell us is just your estimate.

RR: The data are not easily available, so at best we have is, what we consider, estimates, so I'll give you some rough numbers but please recognize these are not detailed source numbers. Our best estimate is FieldTurf, Sprinturf, Astroturf, Shaw Sport Turf, Hellas (regional company in Texas and Louisiana), Motz (regional company in the Midwest), UBU, ProGrass. Jointly, they install about 1100 fields, of which the SFA is about 700 of them, by my estimate. The three, FT, ST, AT are largely national in scope, installing coast to coast. Predominant markets are in east coast and west coast but there's also some significant presence in the Midwest and the middle part of the country. Shaw is very concentrated. Hellas very regional, largely TX and Louisiana; Motz is very regional, largely in the Ohio area; Prograss is also very regional, western Pennsylvania and New Mexico, and UBU, I do not have a good sense of them. Those are most of the installers. This is the list for anyone doing more than 20-25 fields per year.

KJ: Do Sprinturf and the other major installers subcontract out the installation?

RR: That really varies. ST does about 90%+ of our installations in-house and about 10% we will use certified installers who are certified by ST simply because we are required under the conditions of our 3rd party warranty to ensure that these installers are following our system. Now the other players do different things for example, FT, AT, and even Shaw to some extent work through distributors. For example the big distributor for FT in the northeast is called Landtech. And so FT would sell the turf and the warranty to Landtech and Landtech would bid the jobs and install on behalf of FT. There are other places where FT might have their own crews. A lot of the other companies follow distribution model.

KJ: What does selling the warranty mean?

RR: Most fields in the US require not only the warranty on the field to be backed up by the company selling the field. But they also require the warranty to be backed by a third party insurance company, and that warranty survives bankruptcy or change of ownership. The

warranty is either for financial or bankruptcy event or a change of control when the new owners suddenly say they are not responsible for the old warranties.

KJ: Does the warranty carry any implications for the maintenance requirements?

RR: No, it is just a backstop to the financial strength of the company, and in case there is any change of control.

KJ: Can you tell us about the distribution of your synthetic turf fields?

RR: In general, I can't speak for the whole industry. The national companies are going to not exactly follow this but be close. About 30% of installations are along the east coast (New England NY, VA, sometimes for the north into upstate NY and a little bit east into eastern Ohio maybe). The other 25-30% are on the west coast, which is primarily in Southern California, Northern California and the Pacific Northwest. The remaining 30-40% of the fields are spread out in IL, IN, MI, the Dakotas, KS and the St. Louis area, and of course TX and LA. We don't participate too much in TX and LA, Hellas is over there which is probably a 125 fields/year market.

KJ: What portion of ST fields are outdoor vs indoor?

RR: Bruce is executive VP for all of my installations and operations.

BC: I would say about 96-97% of the fields are outdoors, we do a few fields each year which they call bubble fields. That is where they put up roofs in the winter and take them down in the spring. That's from a ST standpoint.

RR: Overall in the industry, the number is probably higher. Some indoor fields tend to be smaller, and the smaller the size of the field, the less competitive we get. So we often don't participate in smaller fields. If you look at the overall industry, indoor-outdoor, it's probably going to be maybe 85-90 outdoor and 10-15 indoor. Our percentage is much less.

KJ: Do you get the crumb rubber from the manufacturers or do you go through a third party?

BC: The crumb rubber we get directly from the manufacturer. We use 3 manufacturers right now for the predominant amounts.

RR: It's largely driven by freight considerations and where their plants are located since crumb rubber is pretty expensive to transport. The industry itself, for the major players, there are maybe six suppliers of crumb rubber. For FT, AT, and ST we all buy direct, not through brokers. I would say six suppliers of crumb supply 85-90% of our needs. And we all follow the STC guidelines on crumb rubber which is every single field that we install we will only accept domestic sources of crumb rubber.

RR: The big consideration for us is the terms of the quality for the majors that follow the simple rules that we require: only use cars and light trucks, only domestic tires, 99.9% crumb. As long as they comply with those there's not a big difference in the quality. It's largely determined by the location of their plants. We can optimize the freight. If you try to ship crumb rubber from the

east coast to the west coast, it becomes unmarketable.

KJ: Is the crumb rubber shipped directly from the processor to the field? Is it stored on the field or is it installed right away?

BC: It's installed usually within 24 hours of being shipped to the field, it's unloaded, in 2000 lb bulk bags, and it's used pretty much right away.

RR: I'll qualify that, by saying that's what we do, because one of the business parts of our model is "pallet to play". We like to control everything from manufacturing our own fibers to installing our own fields. We're able to work these logistics such that the rubber shows up 24-48 hours from when we need to install it. We don't want rubber sitting there on the clock. In all instances that I know of, they go from manufacturing facilities to the field.

KJ: How much tire crumb material is typically installed on a new field?

BC: A normal field is approximately 80,000 square feet, so it would be roughly 240,000 pounds. We use between 3 and 3 ½ pounds per square foot. Sometimes a little bit less, sometimes a little bit more, depending on the product we're installing.

RR: It's a function of what we call the pile height, which is the height of the fiber. Sometimes the fiber is taller. Let's say it's 2 ½ inches, you're at the upper end of the range; if the pile height is lower, let's say 2 inches, then you're on the lower end of the amount that Bruce is talking about.

KJ: We saw you have different product lines on your website. Pure crumb rubber, CoolFill, and the Rubber-Sand. We were wondering what is the most appropriate use of reach one of those.

RR: We like to say for football, we recommend all rubber. We don't always install all rubber, but we think it is the easiest to maintain the GMAX over the life of the field. And it meets every performance standard you can think of for football. If you have other games that you play on the field, if you play sports that involve ball roll, then you tend to want to engineer that infill with some sand to firm up the field a little bit to get you the roll that you want. If you have a sport where you want the ball to roll, or on a multipurpose field (e.g., soccer and lacrosse) you tend to add sand to firm the field up. There are some architects that feel that an all rubber field is too soft. So in some regions of the country, the architect will specify some amount of sand to firm up the field.

CoolFill is basically an encapsulated crumb rubber. You take crumb rubber and encapsulate it with some latex. Not being black it doesn't absorb heat as much. It looks a lot better. People can see that the field is a little cooler in hotter temperatures and some people feel that the green looks a bit better. Those are the two conditions under which cool fill is used. We recommend when CoolFill is used that they also use cool fiber which incorporates reflective technology in the fiber. If it's 85 degrees outside, you're not going to see a big difference. On the hottest day, in really hot temperature, CoolFill with cool fiber has about a 20 to 25 degree cooling effect simply because the lack of absorption with the green infill and the reflectivity on the cool fiber.

KJ: You spoke about the proportion of fields that are cool fill fields, the smaller percentage. What about the proportion between pure crumb rubber and rubber sand?

RR: I'm going to take a guess because we haven't done a real analysis, 2/3 sand-rubber maybe, and 1/3 all rubber. Maybe even slightly more sand-rubber, 66% to 70% sand-rubber. A lot of fields used are multi-sport, and then all-rubber tends to be too soft.

JM: Do the fields that have the all-rubber as the infill layer at the top still have the sand for the bottom layer?

RR: No, they are 100% all-rubber.

KJ: When did you start using each of these products?

RR: Rubber and rubber-sand are not really too far apart. Rubber infill systems started in 1997, 1998 timeframe. They probably really started becoming commercial in the early 2000s. Right from the very first fields, you're going to see rubber and sand-rubber. CoolFill we started in 2000.

KJ: How does installation differ for these products?

BC: With the all rubber and CoolFill systems they are the same, we drop the rubber using agricultural spreaders like you would see on a golf course. With a sand and rubber system, we put the rubber on the bottom and the sand on top and allow the sand to, because of specific gravity, over time drop to the bottom. The process is the same up until putting the sand in, which is just an additional layer on top.

KJ: Do field owners request cryogenically processed crumb rubber and what do you recommend?

RR: If someone requests cryogenic, we'll provide them with cryogenic. Some people like it, it is more symmetrical than ambient because of the nature of the product. It works better with certain systems.

KJ: What size mesh is preferred and why?

BC: We use a 10 to 20 mesh product and it can go down to an 8. The majority we like to see is between a 12 and a 16. It locks together well, it bridges itself well. We don't want to see anything above a 20 mesh, because we want a bigger granule. With our CoolFill we get tighter on the specifications, we don't like to see anything above an 18.

RR: Most of industry is in that same range.

KJ: What happens to the tire crumb material that is not used at installation?

BC: Typically what we'll do is, if there are 1 or 2 bulk bags left over, we will leave that as additive stock and it will be stored on site. If there is more than that, we'll ship it to the next job.

KJ: Are there differences in the construction of indoor and outdoor fields? Specifically related to the materials used and the material quantity.

BC: The proportions would be the same depending on the system that someone chooses, depending on the pile height they requested. It would be adjustable, but it's no different than an outdoor field per square foot.

RR: The only adjustment we would recommend on an indoor field, and this is because an indoor field gets more use, we usually recommend a more durable fiber. You can put an outdoor field in with maybe a 40 ounce fiber per square yard and get away with it. If you used that on an indoor field, it is likely to get worn down before warranty period. So we typically recommend a more robust fiber simply because it gets more use. But the infills are exactly the same.

KJ: In general, what is the ratio of crumb rubber and sand?

BC: From Sprinturf's standpoint we use a 70% rubber, 30% sand mix. This would be preferred, but we work through the specification so we see sometimes less sand, sometime more sand. The rubber typically stays the same, depending on the pile height of the fiber, at between 3 and 3 ½ pounds.

RR: The ratio is a low of about 50 and a high of about 80. There are specifications, different architects like different things. All we do is make what people ask for. We don't spec fields, we don't go in there and tell them how much infill to use. The athletic fields have architects who engineer these things. The ranges we see in terms of specs are, on a combination field, 50/50 to 80/20, most of what we install is 70/30.

KJ: With regards to the sand, what kind of sand is this and what is the source?

BC: We use silica sand, typically a 20-40 mesh and the majority of the material we get are from companies in Ohio and western Canada but their sources are in the United States.

CC: Do most customers request the lines are glued in or painted in?

BC: There are several ways to do it. On a football fields, 5 yard lines and sidelines are tufted in on our plant. And soccer boxes, logos, hash marks are cut and glued in the field. A lot of clients go with minimal amount of markings, just with the sidelines and 5 yard lines. Then they'll paint Lacrosse creases and those kinds of markings.

RR: The 5 yard lines are tufted in (we put white yarn and tuff them into the product). At the manufacturing facility.

BC: Hash marks are done on the field. A logo is made at a facility and we ship the whole logo and then it is cut and glued onto the field on-site. The same process occurs with end zone letters.

RR: The hash marks and the logos are actually manufactured from fiber. The logo guy uses a CAD drawing to take these various colors of fibers that we send to them and they use water jets to cut the logo out and then they ship the logos to site and there they are glued into place.

KJ: What kind of glue is used?

BC: One part urethane glue.

CC: Do the marks that are glued in last as long as the marks that are tufted in?

BC: The glues nowadays last. They are made specifically for this application.

RR: Each panel is 15 feet wide. In the past the panels used to be glued together, but now most of the majors sew them together on the field as opposed to glued together.

KJ: How long does a field last until it must be replaced?

RR: It really depends on the usage and the customers. Our warranties are for 8 years. We are replacing fields anywhere from nine to 11, in that range. University of Pennsylvania was 9 years. We have some in the Atlanta area go 11 to 12 years. To some extent it depends on the usage. All-rubber fields tend to last longer. Over a period of time, sand tends to harden, going through wet and dry cycles, and it gets to the point where it becomes problematic. Predominantly rubber fields can last a long time. The other part of it is its usage. Sometime people put in these turf fields and use it as a source of revenue. Once they put in a turf field they can practice and play on it, and can rent it out to other people as a source of revenue. If you keep using the field a lot, you're going to wear the field out. The biggest wear you have on a field is the fiber itself. And if you have a lot of sand, the sand starts to harden. In many cases, we tend to reuse the rubber if the client has no objection. The amount of rubber we reuse is a function of how much we can extract. So far we can get about 2/3 extraction and reuse, but if we could extract more we could use more.

KJ: Do your maintenance recommendations change based on the climate the field is located in, to account for rain, hail, frost, or sleet?

BC: No, generally we have the same maintenance requirements.

KJ: Do you have any specific requirements for odor control?

BC: No.

KJ: Do you recommend anything special to control MRSA?

RR: We haven't been aware of issues with MRSA.

CC: What are the high use areas on the fields that need to be filled in more with rubber?

BC: Lacrosse creases, soccer penalty kicks and corner kicks. We recommend as part of routine maintenance that people keep their eyes on that.

RR: If we know that there are going to be those high use areas, and those type of sports will be played on the field, we leave 2 super stacks per field.

BC: What I tell people is when your maintenance guy is going out to groom, take a five gallon bucket of rubber and check those areas to make sure the rubber is up there. It's more to keep the fiber upright than anything. Extra points for football are also high use areas.

KJ: Do you have any recommendations that is different from the STC technical guidelines?

BC: No, we were involved in those recommendations, so that is what we follow.

KJ: That's it from us. Any questions for us?

RR: The only other comment I will make from the maintenance requirement is that we find, in coming up on these replacement cycles, (because the fields didn't start going commercial until the early 2000s) that a lot for customers, especially when they have 70/30 or 80/20, don't even do the maintenance to keep the field healthy. Most of the majors offer customers when we put in a field a maintenance package (we call it SprintCare) where we go in once a year (sometime twice a year) to make sure the field is in good shape, clean it up, and if there's any loose seams we take care of them. We prefer to do that and lay our eyes on our fields at least once a year to make sure it's all good.

KJ: You mentioned there is a field installation in the Philadelphia area at the end of May, what type of field is this, and will it be anything special with regards to any other types of fields out there.

BC: We have a couple fields going in. I would say early June right now, and they're typical fields, rubber and sand mix. If you'd like to see it, we'd be happy to have you.

RR: You'd want to visit when fields are being infilled or do you just want to see an installation?

KJ: Could you speak to the process?

BC: Sure, the job would start in late May so right now, if you're looking to see the infill, it would be the second to third week in June, assuming the base and drainage are in place. The first 3 days we will be sewing a majority of field, which is the goalpost and main sideline panels that go on the inside of the football field. Then we will spend the following five to six days inlaying all the special sports markings and logos and that would be followed by four days of infilling the field. Approximately 14 working days on the job.

RR: So if you all are interested, there are basically three major stages: The first stage is sewing together the panels. The second stage is gluing in all the markings, hash marks, and logos. And stage three is basically the infilling of the field.

KJ: We'll think about this and follow up with you.

RR: If there's anything else we can do to help just let us know.